# Top Level

version 10, edit 2

# Baseband - Top Level

version 10, edit 2

SHEET 3
FMRADIO
axis
XAUDIO(17:0)
TIKU_GENIO(30:0)
PUSL(3:0)
AUDUEMCTRL(3:0)
FMANT

SHEET 4
SYS_CONN
axis
FMANT
ACI
XMIC(2:0)
XEAR(3:0)
SLOWAD(6:0)
ACCDIF(2:0)
CHARGER(4:0)
TIKU_GENIO(30:0)
USB_DIG(6:0)

SHEET 5
AUDIO
axis
TIKU_GENIO(30:0)
FMANT
ACI
XMIC(2:0)
XEAR(3:0)
TIKU_GPIO(63:0)
XAUDIO(17:0)
AUDIO(6:0)
SIM2MMCIF(3:0)

SHEET 6
SIM
axis
SIMIF(3:0)

SHEET 7
KEY_UI
axis
UIDRV(5:0)
PWRONX
TIKU_GPIO(63:0)
KEYB(10:0)
LCDUI(2:0)

SHEET 8
POWER
axis
PWRONX
UIDRV(5:0)
RFCONV(9:0)
RFAUXCONV(2:0)
XAUDIO(17:0)
AUDIO(6:0)
SIM2MMCIF(3:0)
TIKU_GPIO(63:0)
PUSL(3:0)
AUDUEMCTRL(3:0)
SLOWAD(6:0)
ACCDIF(2:0)
CHARGER(4:0)
RFCONVDA(5:0)
RFCONVCTRL(2:0)
IACCDIF(5:0)
AUDIODATA(3:0)
SIMIF(3:0)
SIM_TIKU(2:0)

SHEET 9
IR
IACCDIF(5:0)
TIKU_GENIO(30:0)

SHEET 10-12
GPS
navigator
TIKU_GENIO(30:0)
PUSL(3:0)
CLK19M2_GPS

SHEET 13
TIKU
axis_tikuedge
LCDUI(2:0)
CCP(4:0)
DIFDATA(7:0)
DIFCTRL(3:0)
KEYB(10:0)
TIKU_GENIO(30:0)
TIKU_GPIO(63:0)
PUSL(3:0)
AUDUEMCTRL(3:0)
RFCONVDA(5:0)
RFCONVCTRL(2:0)
IACCDIF(5:0)
AUDIODATA(3:0)
SIM_TIKU(2:0)
USB_DIG(6:0)
RFICCNTRL(2:0)
CLK19M2_TIKU
MEMADDA(15:0)
MEMAD(24:16)
MEMCONT(9:0)
SDRDA(15:0)
SDRCTRL(8:0)
SDRAD(15:0)
JTAG_EMULATION(6:0)
DSP_MCUTEST(2:0)

SHEET 14
CAMERA
axis
CCP(4:0)
TIKU_GENIO(30:0)
PUSL(3:0)

SHEET 15
MEMORY
combo128+16mbit
TIKU_GENIO(30:0)
MEMADDA(15:0)
MEMAD(24:16)
MEMCONT(9:0)
SDRDA(15:0)
SDRCTRL(8:0)
SDRAD(15:0)

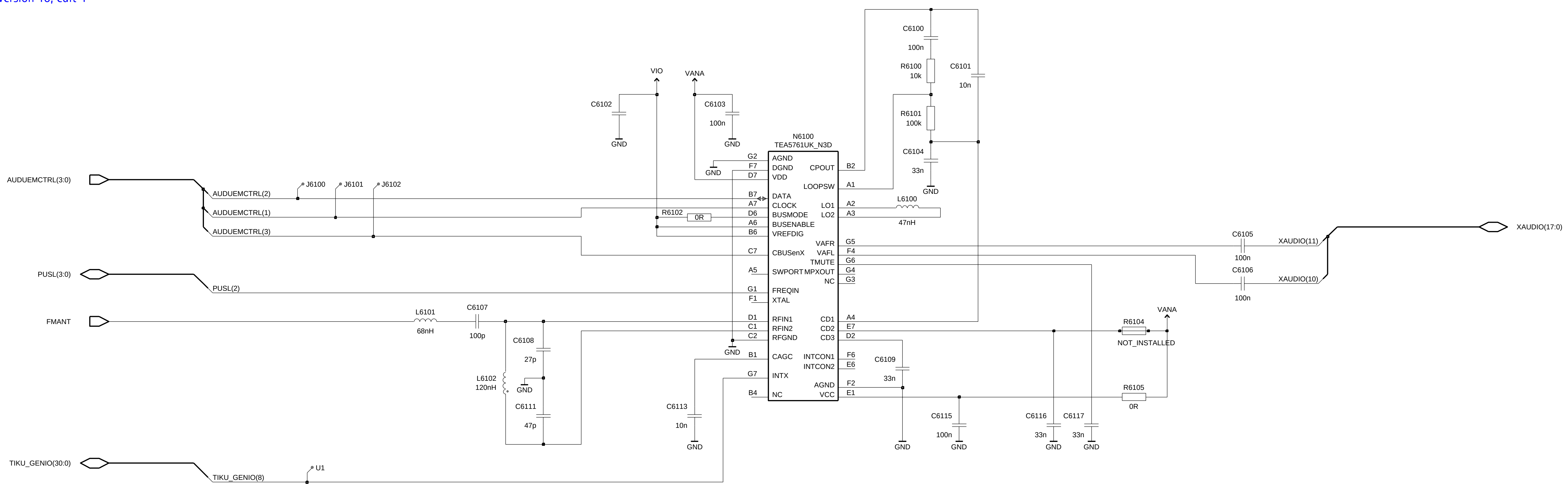
SHEET 16
EMU
axis
JTAG_EMULATION(6:0)
DSP_MCUTEST(2:0)

Signals: XAUDIO(17:0), TIKU_GENIO(30:0), PUSL(3:0), AUDUEMCTRL(3:0), FMANT, ACI, XMIC(2:0), XEAR(3:0), SLOWAD(6:0), ACCDIF(2:0), CHARGER(4:0), UIDRV(5:0), PWRONX, KEYB(10:0), LCDUI(2:0), TIKU_GPIO(63:0), AUDIO(6:0), SIM2MMCIF(3:0), SIMIF(3:0), RFCONV(9:0), RFAUXCONV(2:0), RFCONVDA(5:0), RFCONVCTRL(2:0), IACCDIF(5:0), AUDIODATA(3:0), SIM_TIKU(2:0), RFICCTRL(2:0), MEMADDA(15:0), MEMAD(24:16), MEMCONT(9:0), SDRDA(15:0), SDCTRL(8:0), SDRAD(15:0), JTAG(6:0), DSP_MCUTEST(2:0), CCP(4:0)

Ports: CLK19M2_GPS, CLK19M2_TIKU, PUSL(3:0), TIKU_GENIO(30:0), SLOWAD(6:0), RFCONV(9:0), RFAUXCONV(2:0), RFICCTRL(2:0)

# FM Radio

version 10, edit 4



# System Connector

version 10, edit 6

TEST POINTS FOR BATTERY
For After Sales

E2008
E2009
E2010
E2011
GND

X2000
VBATT
BSI
GND
GND
J2000 J2001
J2002
J2003 J2004
BSI
VBAT
C2000 47p
C2001 10n 0603
C2002 47p
GND GND GND GND GND

BSI
0
1
SLOWAD(6:0)
R2000 47k
GND

J2009
J2010
SMD Tomahawk
Charger connector
NOT_INSTALLED
X2003
+ 1
2
GND
VCHAR
GND

F2000 2A
L2000 42R/100MHz
V2000 1PMT16AT3
C2003 1n0
C2004
GND
CHARGER(0)
0
NOTE: ROUTE AS DIFFERENTIAL PAIR
1mm WIDE EACH TRACE
CHARGER(4:0)

TOMAHAWK
BOTTOM CONNECTOR

ACI

PRODTP7 PRODTP3 PRODTP2
VAUX2 Vbus VFLASH1
R2001 0R
R2002 0R
R2003 0R
NOT_INSTALLED NOT_INSTALLED NOT_INSTALLED
R2006 100k

Tomahawk
System connector
X2001
1 2 3 4 5 6 7 8 9 10 11 12 13 14
GND
AGND
GND

L2001
L2002
L2003
600R/100MHz
R2005 33R
C2005 100n
GND
R2004 14V/50V
GND

R2007
EMIF02-USB02F2
R4
R3
R2
R1
GND
GND

VAUX3 Vbus VIO
J2011 J2012
C2006 1u5
R2008 220k
R2009 220k
C2007 1u0
C2008 10n
GND GND GND GND GND

N2000
CP2137
7 VCC_I/O
14 VCC
15 Vpu
10 D+/RXD
9 D-/TXD
Vreg 13
_SPEED 8
SEMODE 6
SOFTCON 16
_OE 1
RCV 2
VM 4
VP/FRX 3
FSE0/FTX 12
VO 11
SUSPND 5
17=GND

J2013
TIKU_GENIO(30:0)
TIKU_GENIO(30)
TIKU_GENIO(14)
TIKU_GENIO(18)
USB_DIG(5)
USB_DIG(2)
USB_DIG(1)
USB_DIG(0)
USB_DIG(4)
USB_DIG(3)
USB_DIG(6:0)

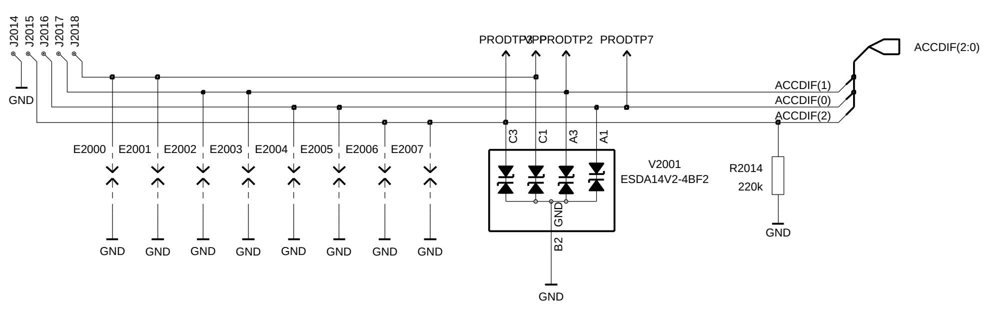
L2004
MCZ1210AD102T
XMICP_IN
XMICN_IN
XMICP 1
XMICN 0
C2009 3n3
C2010 3n3
GND GND
XMIC(2:0)

L2005
MCZ1210AD102T
HSEAR_P_IN
HSEAR_N_IN
R2010 14V/50V
C2011 3n3
R2011 14V/50V
C2012 3n3
GND GND GND GND
XEAR_LP 2
XEAR_LN 3

L2006
MCZ1210AD102T
HSEAR_R_P_IN
HSEAR_R_N_IN
XEARP 1
XEARN 0
XEAR(3:0)
C2013 10p
C2014 10p
C2015 10p
C2016 10p
R2012 14V/50V
C2017 3n3
R2013 14V/50V
C2018 3n3
GND GND GND GND

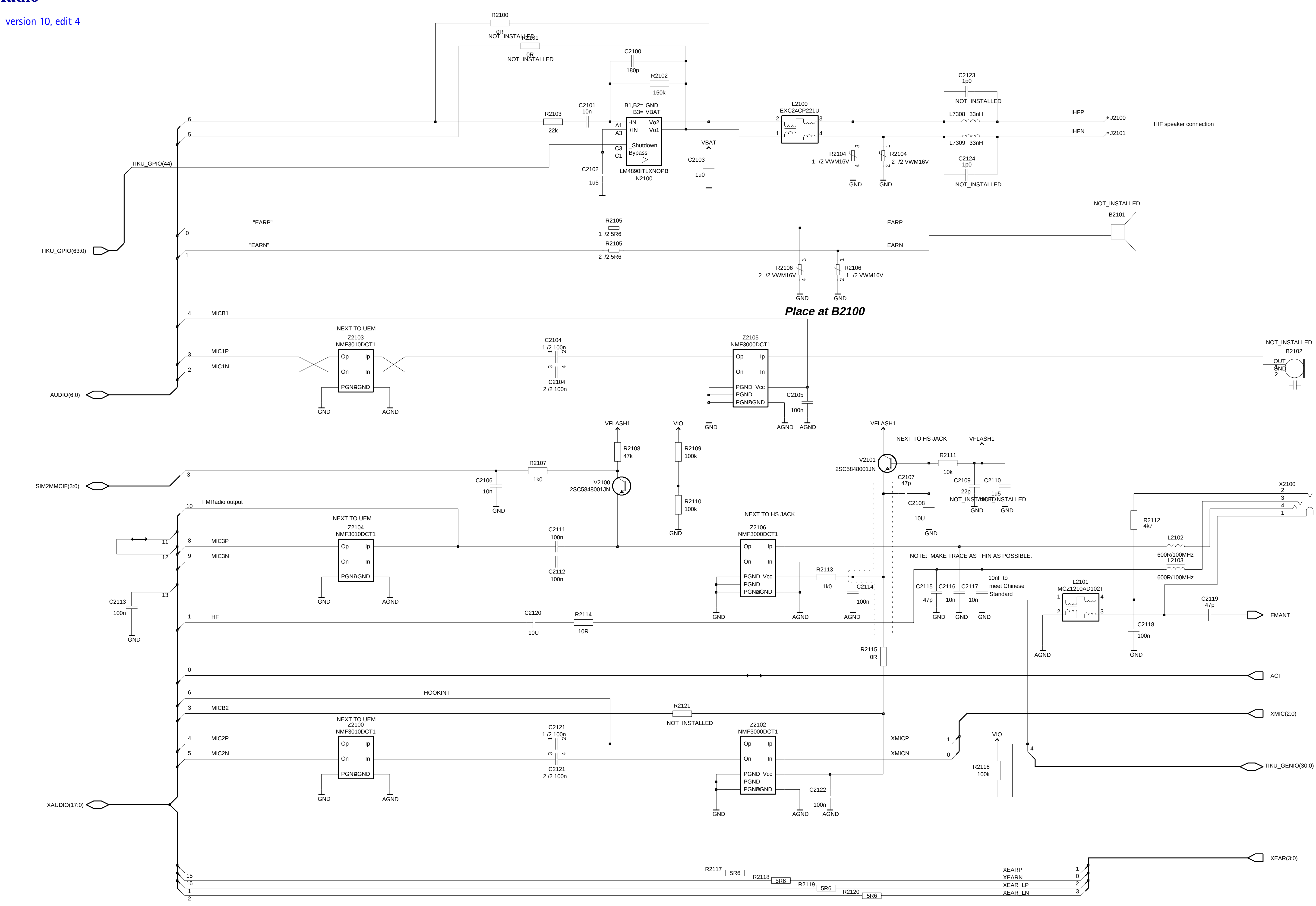
PRODUCTION TEST, FM RADIO
J2005 J2006 J2007 J2008
GND
FMANT

PRODUCTION TEST PATTERN



# Audio

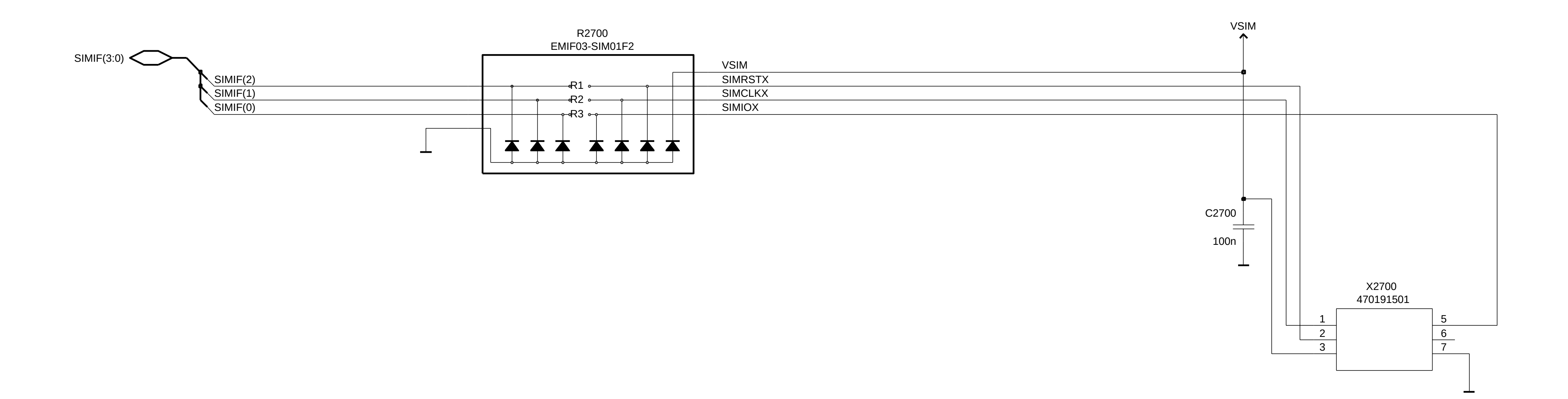
version 10, edit 4



# SIM Card

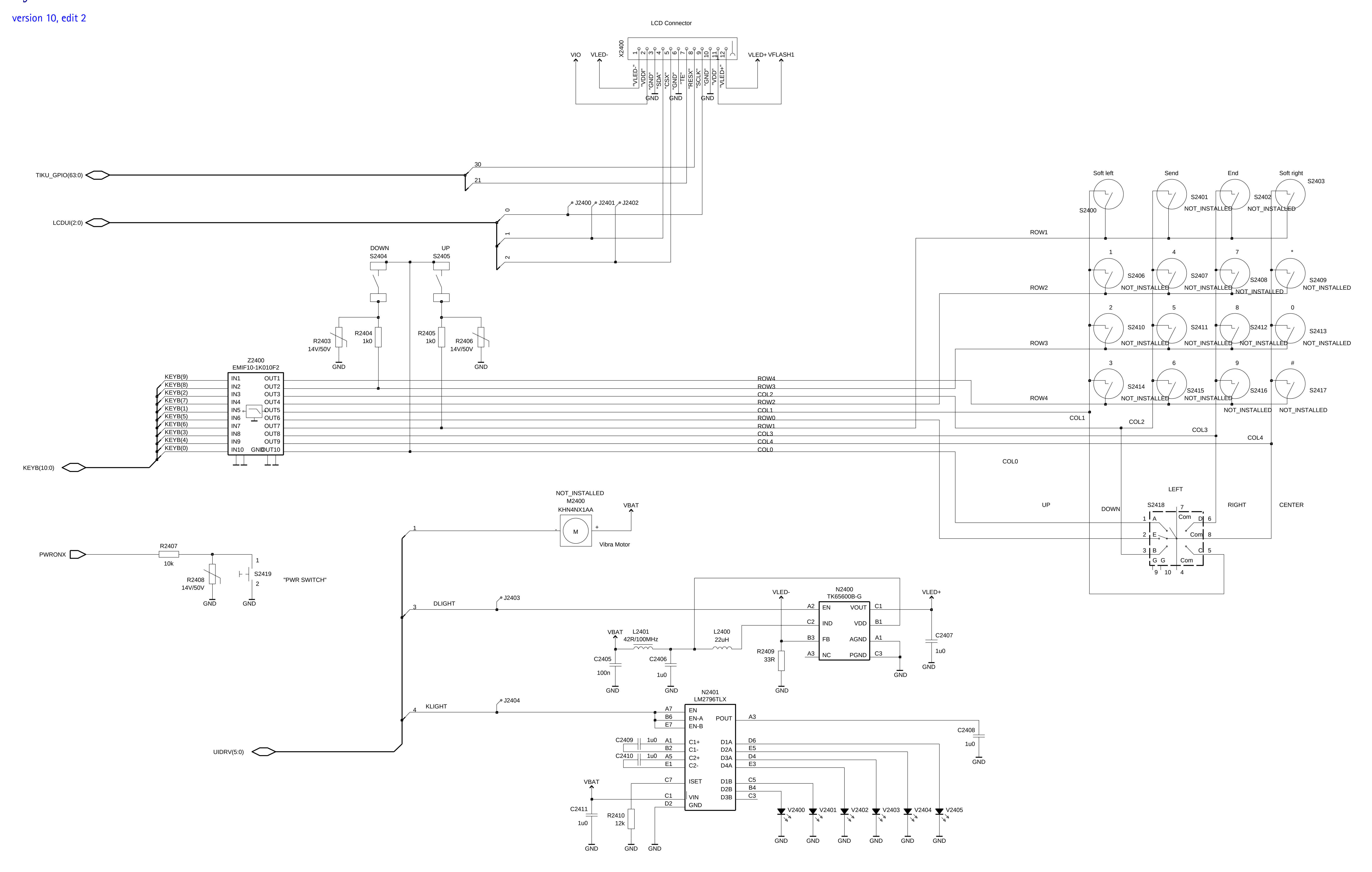
version 10, edit 3



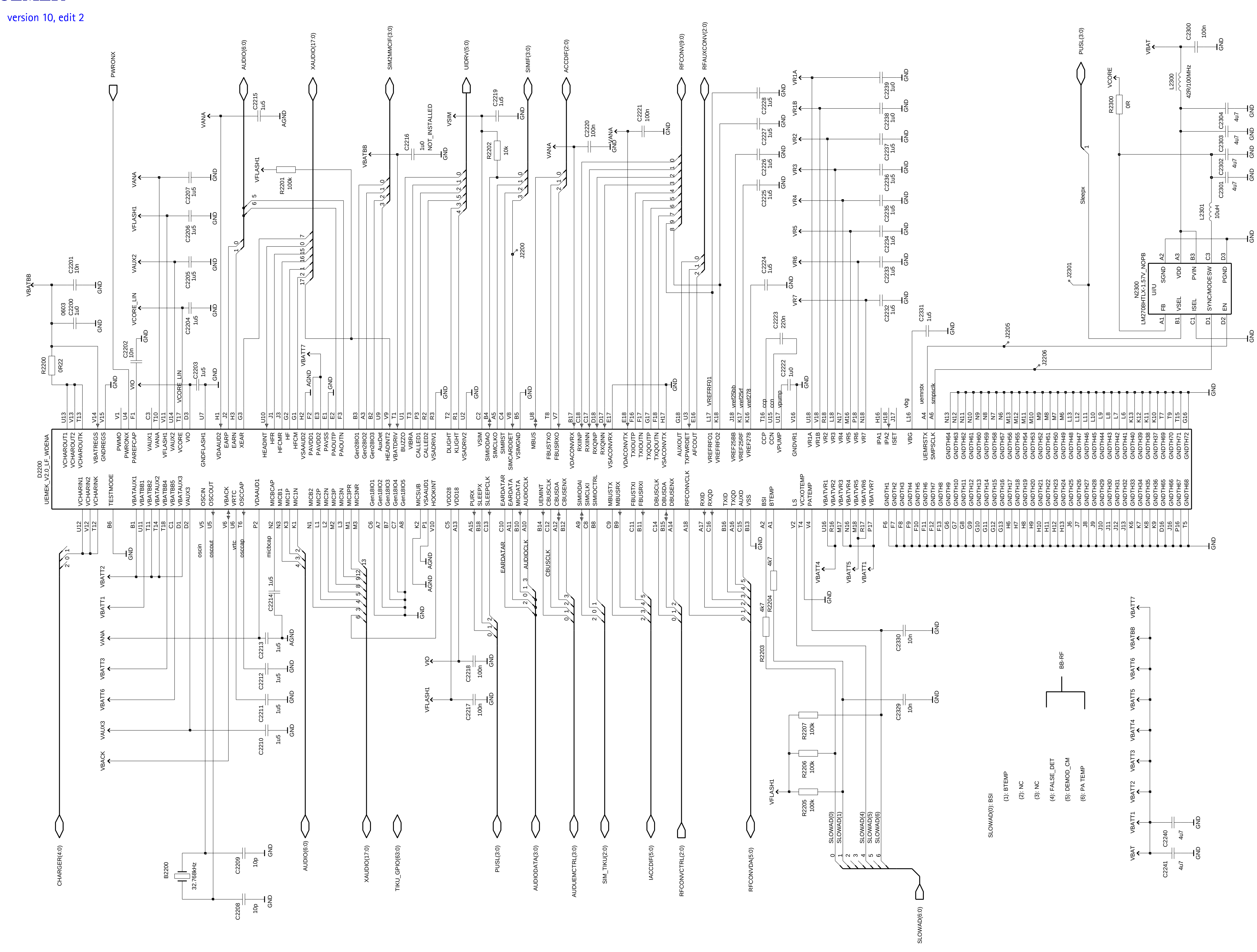
# Key User Interface

version 10, edit 2



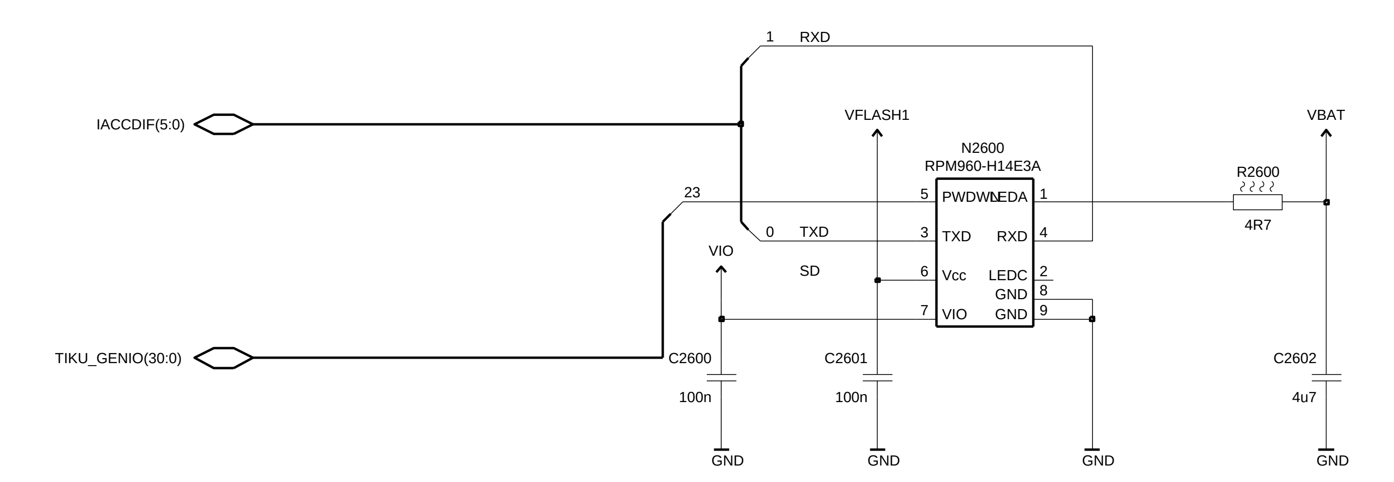
# UEMEK

version 10, edit 2



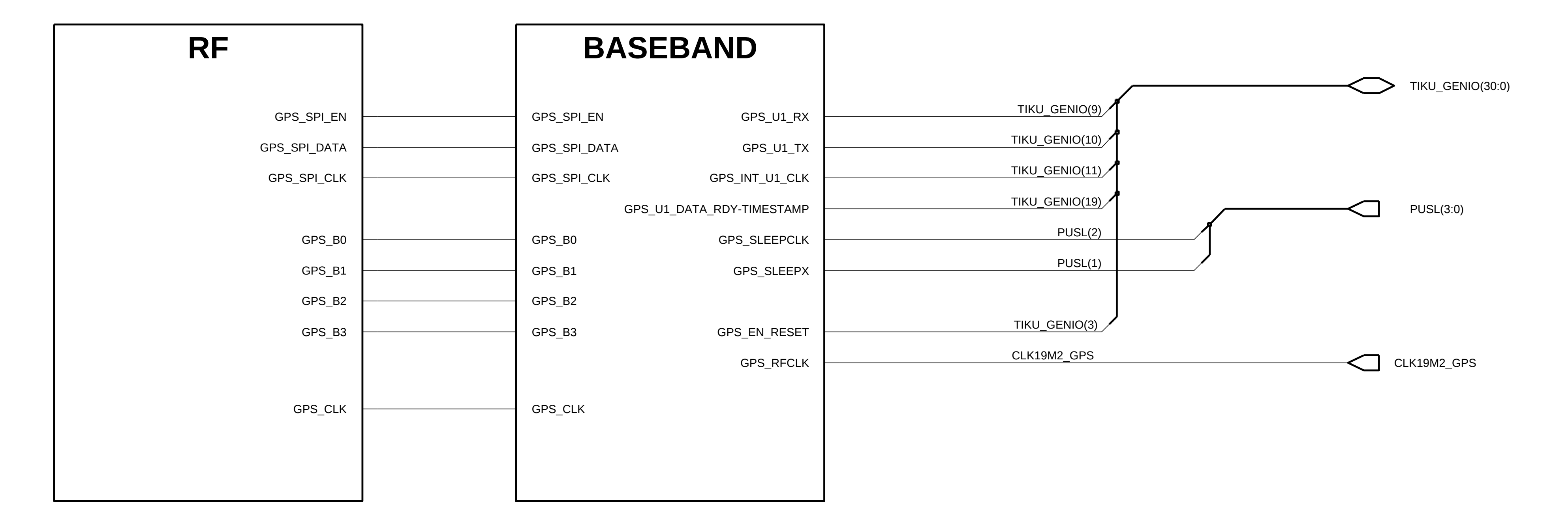
# Infrared

version 10, edit 3




# GPS Top Level

version 10, edit 2



# GPS RF

version 10, edit 2

VRF_GPS
R6250 120R
R5251 22k
C6250 100n
R6255 47R
C6251 27p
SHARED GEOM
R6252 10R
C6252 1u5
R6256 0R
L6252 15nH
SHARED GEOM
L6253 3n9H
R6253 150R
C6253 47p
X6250
E6250
R6254 0R
L6250 NOT_INSTALLED
L6251 12nH
C6254 2p2
E6251
Z6250 1575.42MHz
GND
SHARED GEOM
C6269 10p
R6257 0R
V6250 BFP620_L7764
0.135x1.0mm
0.135x1.0mm
C6256 6p8
Z6251 IN OUT 1575MHZ
C6258 2p7
L6254 8n2H
C6259 15p

VRF_GPS
C6257 10n
N6250 +DC NC TCO-5839H2 OUT 16.368MHz GND
C6255 10p
J6259

N6251 TRF5101GQC_PBFREE
G3 CS
G4 SDATA
G5 SCLOCK
B7 XTAL1
C7 XTAL2
D1 LNAIN
J6260 G1 Test_IF_P
J6261 G2 Test_IF_M
A3 VccVCO
A5 VccVCO
A7 VccPLLA
B1 VccLNA
E1 VccRFMix
F1 VccIF
F2 VccADC
D6 VccPLLD
E6 VccBUF
B6 SUB
A1 NC
E3 Gnd
E4 Gnd
E5 Gnd
GPSCLOCK D7
ADCOUT0 E7
ADCOUT1 F7
ADCOUT3 G6
ADCOUT2 G7
LO/8 A2
CP_OUT A6
NC A4
GndVCO B2
GndLNA1 C1
GndLNA2 D2
GndLNA3 C2
GndRFMix E2
GndIF1 F3
GndADC F4
GndDIG F5
GndBUFF F6
Gnd B3
Gnd B4
Gnd B5
Gnd C4
Gnd C5
Gnd C6
Gnd D3
Gnd D4
Gnd D5
J6256

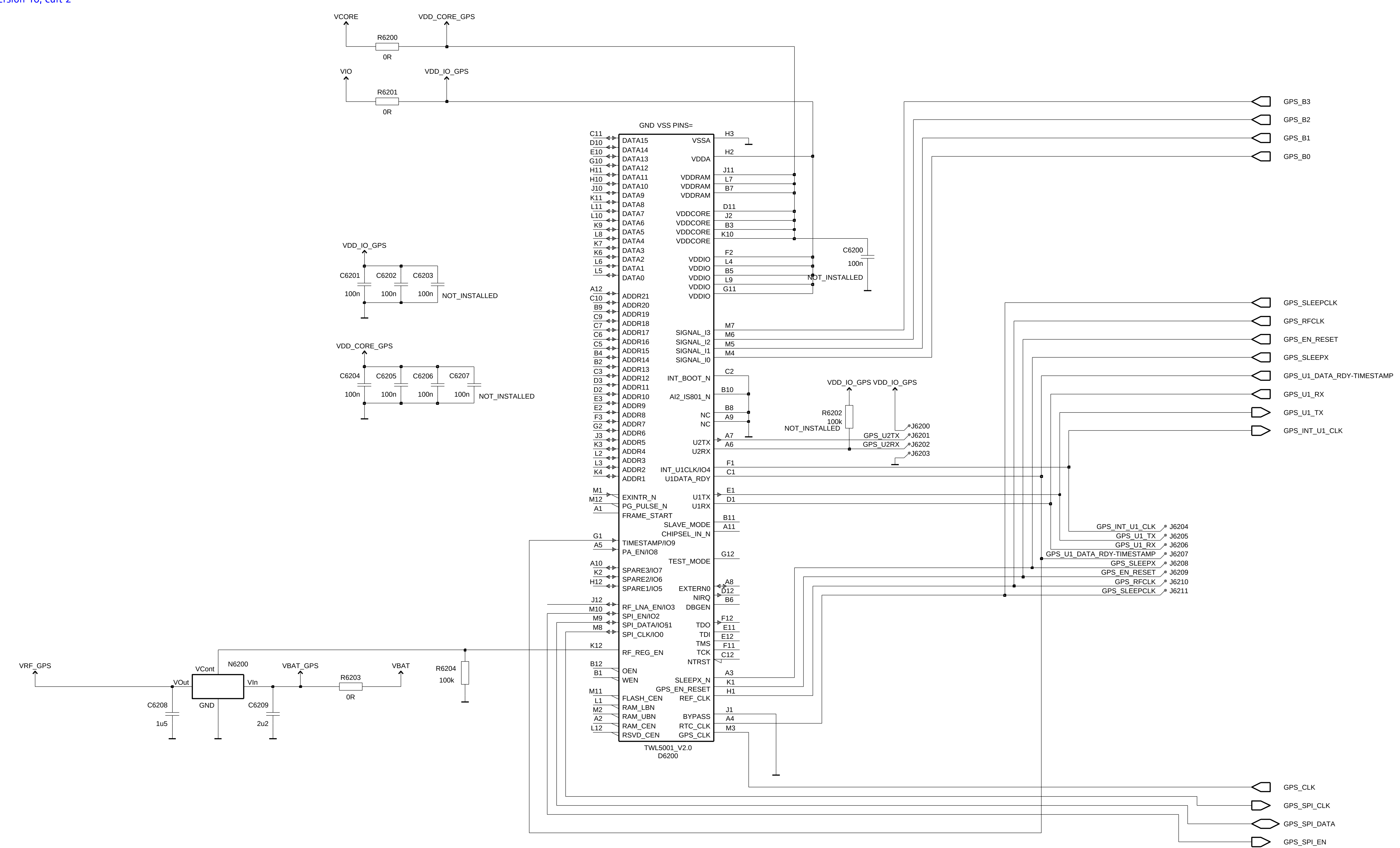
VRF_GPS
C6260 10n
C6261 10n
C6262 10n
C6263 22p
C6264 22p
C6265 22p
C6266 100n
VDD_IO_GPS
C6267 22p
C6268 100n

J6250 GPS_SPI_CLK
J6251 GPS_SPI_DATA
J6252 GPS_SPI_EN
J6253 GPS_CLK
J6254 GPS_B0
J6255 GPS_B1
J6257 GPS_B3
J6258 GPS_B2

# GPS BB

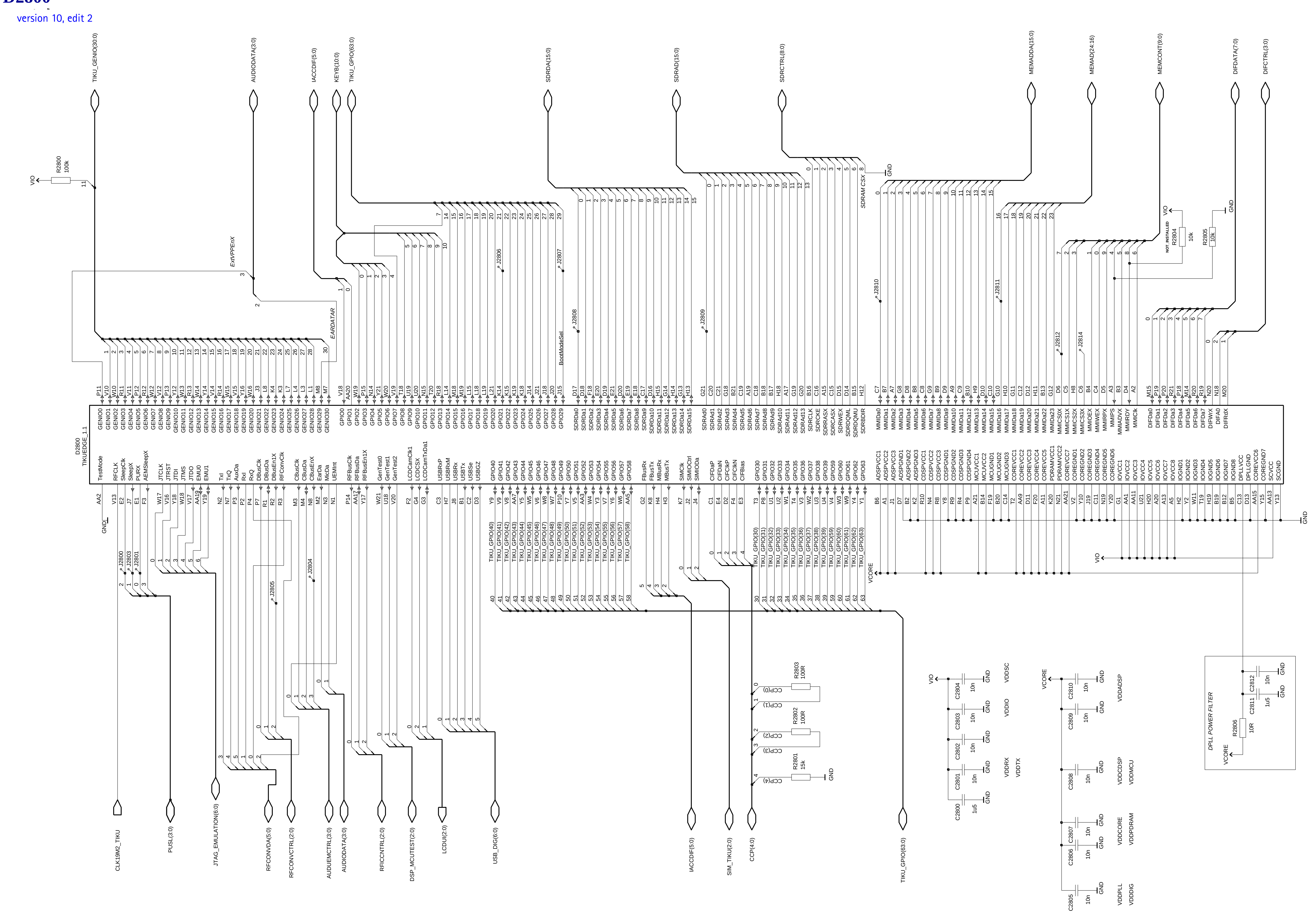
version 10, edit 2



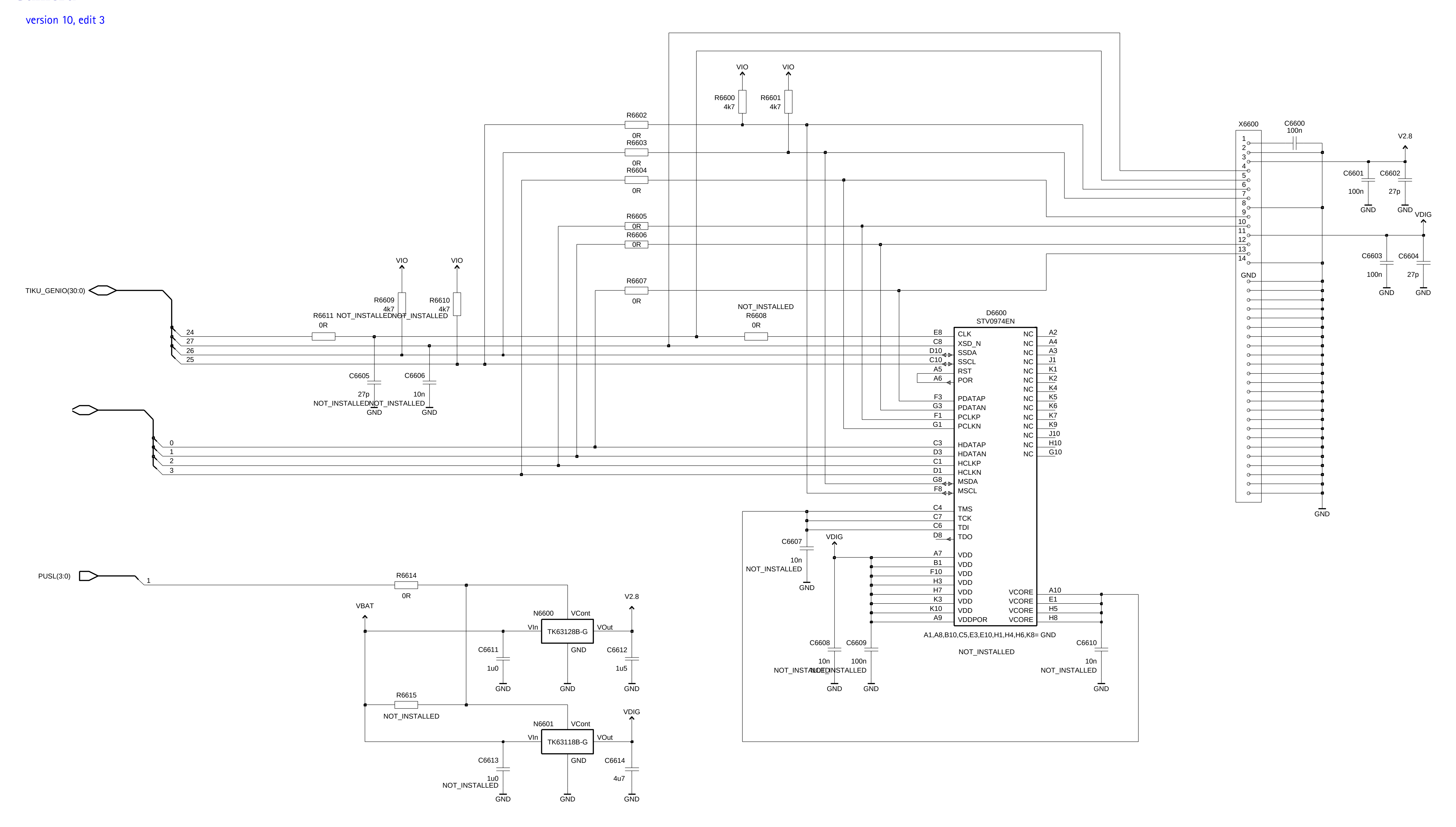
# D2800

version 10, edit 2



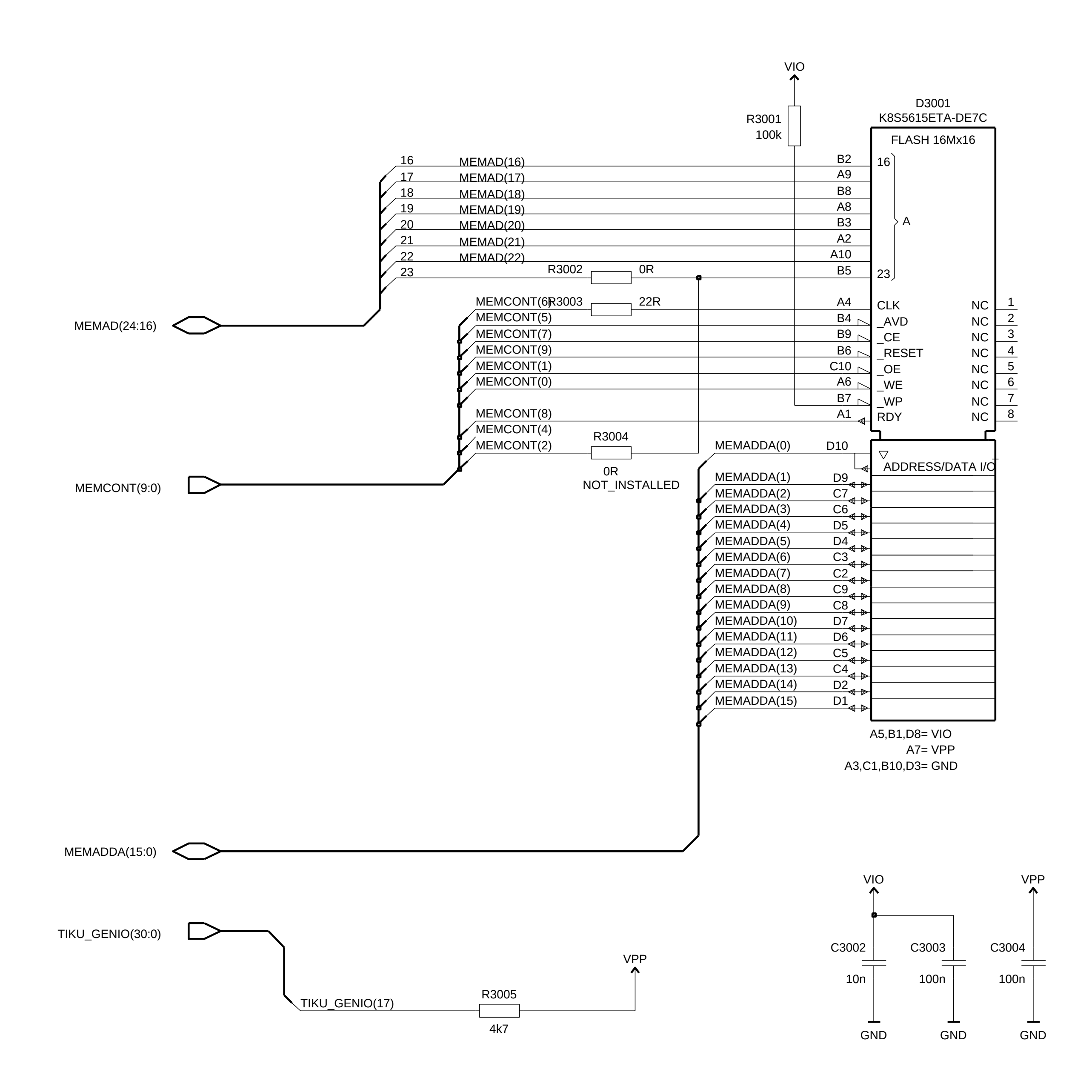
# Camera

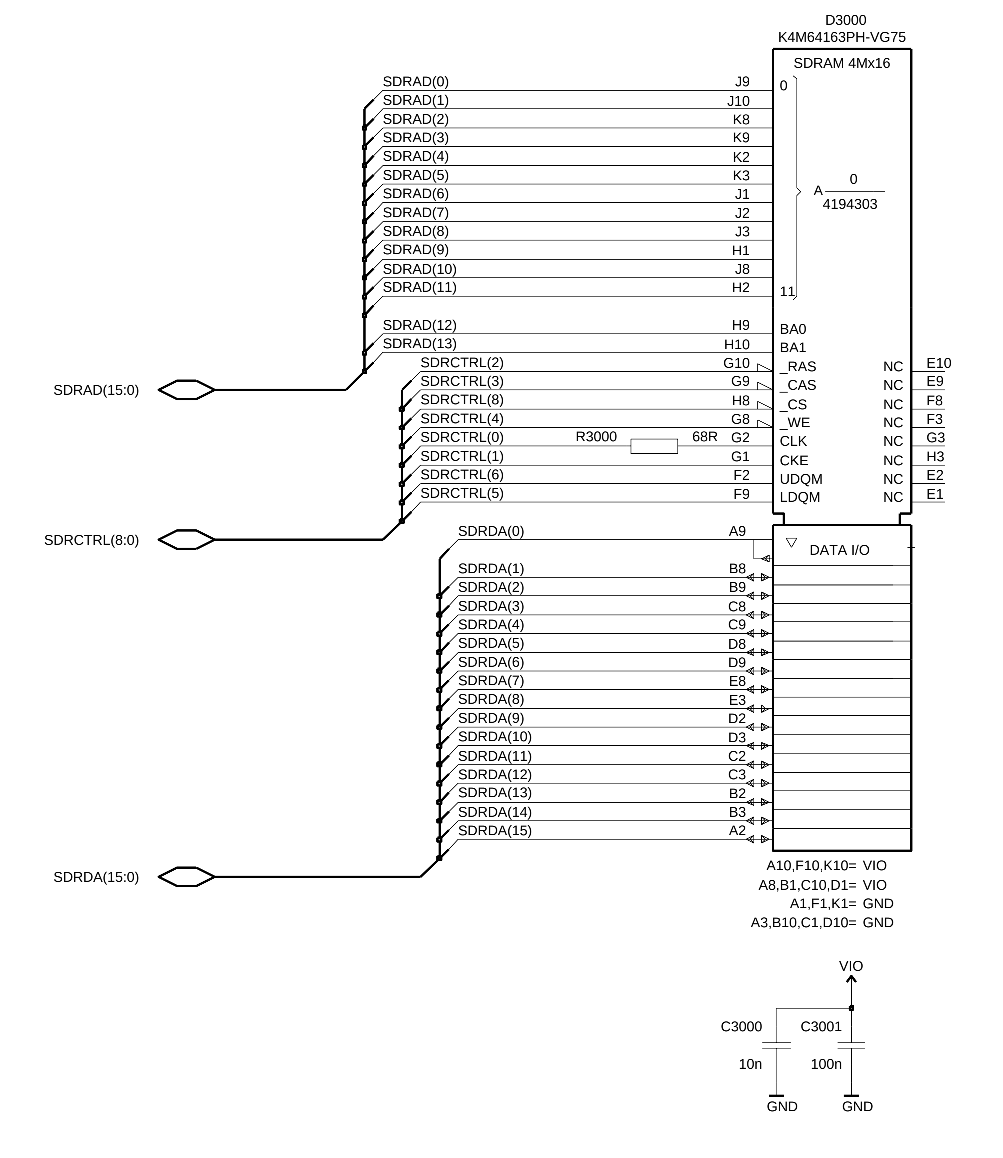
version 10, edit 3



# Memory

version 10, edit 3





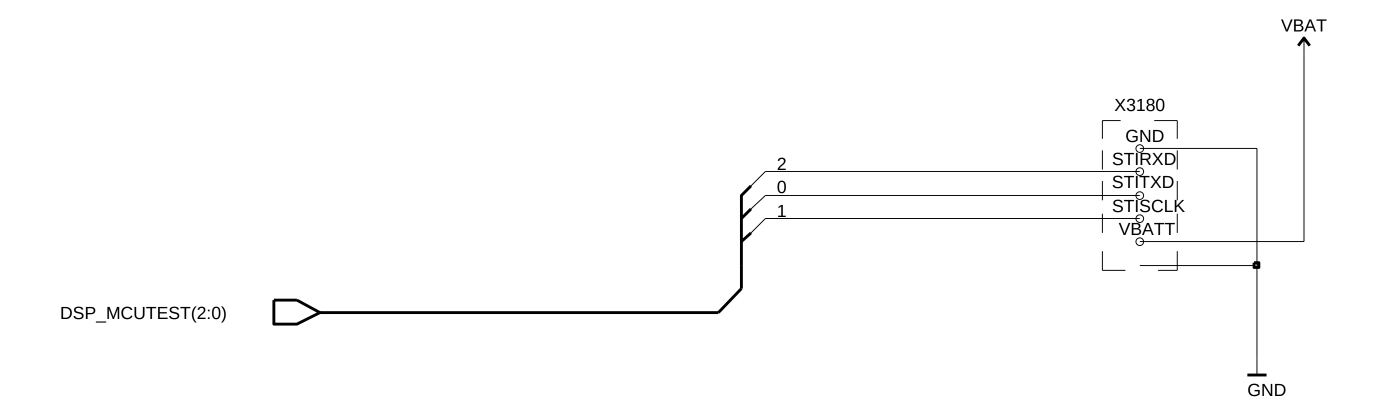
NOTE: Use R3004 for 128/128 NOR FLASH Pin B5 --> CE2

Use R3003 for 256M NOR FLASH Pin B5 --> A23

USE THE COMMON PART FOOTPRINT

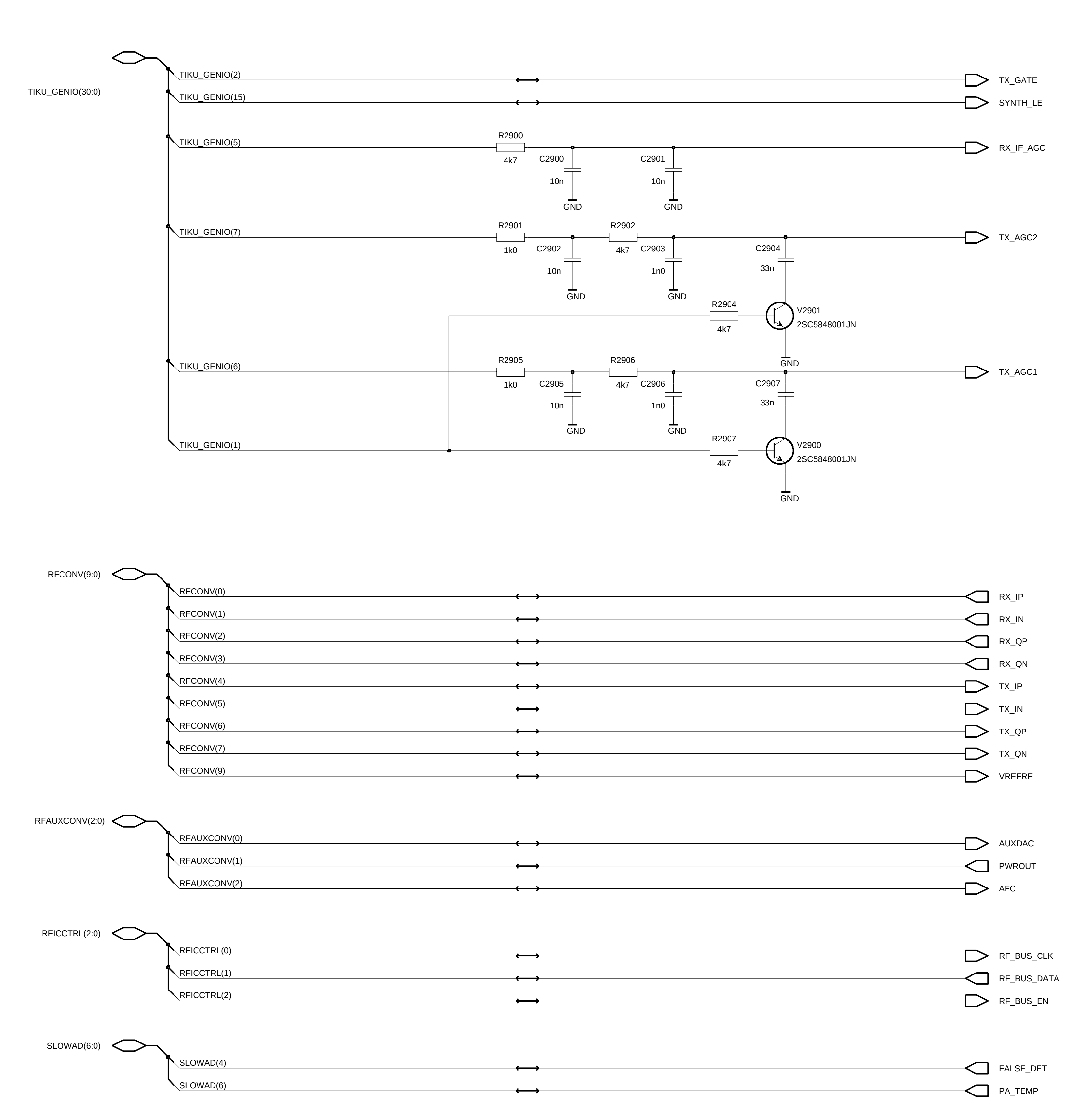
# Test and Emulator Interface

version 10, edit 2



## RF-BB Interface

version 10, edit 4



# RF - Top Level

version 10, edit 2

N7000
PA_BIAS AUXDAC FALSE_DET FALSE_DET
TX_AGC1 TX_AGC1 PWROUT PWROUT
TX_AGC2 TX_AGC2
TX_IP TX_IP
TX_IN TX_IN TEMP TEMP
TX_QP TX_QP DCOUT DCOUT
TX_QN TX_QN IREF_CEL IREF_CEL
RF_BUS_CLK RF_BUS_CLK IREF_PCS IREF_PCS
RF_BUS_DATA RF_BUS_DATA PA_INPUT_CEL PA_INPUT_CEL
RF_BUS_EN RF_BUS_EN PA_INPUT_PCS PA_INPUT_PCS
TX_GATE TX_GATE
F_REF_TX F_REF_TX

PA
TEMP TEMP PA_TEMP PA_TEMP
DCOUT DCOUT
IREF_CEL IREF_CEL
IREF_PCS IREF_PCS
PA_INPUT_CEL PA_INPUT_CEL
PA_INPUT_PCS PA_INPUT_PCS
LNA_CEL LNA_CEL
LNA_PCS LNA_PCS

PURX
VREFRF01

UHF_SYNTH
RF_BUS_DATA RF_BUS_DATA F_REF_TX F_REF_TX
RF_BUS_CLK RF_BUS_CLK
PCS_CELL_LO PCS_CELL_LO
AFC AFC AFC
F_REF_RX F_REF_RX
SYNTH_LE SYNTH_LE SYNTH_LE CLK19M2_GPS CLK19M2_GPS
CLK19M2_TIKU CLK19M2_TIKU
BAND_SEL_VCO BAND_SEL_VCO CLK19M2_LPRF CLK19M2_LPRF

RX_FRONT_END
LNA_PCS LNA_PCS
LNA_CEL LNA_CEL
CDMA_IF_P CDMA_IF_P
PCS_CELL_LO PCS_CELL_LO CDMA_IF_N CDMA_IF_N
AMPS_IF_P AMPS_IF_P
AMPS_IF_N AMPS_IF_N
GAIN_CTL GAIN_CTL
BAND_SEL_FE BAND_SEL_FE
IF_SEL IF_SEL

N7100
RF_BUS_CLK RF_BUS_CLK
RF_BUS_DATA RF_BUS_DATA
RF_BUS_EN RF_BUS_EN1X
PURX PURX
VREFRF01 VREFRF01
CDMA_IF_P CDMA_IF_P
CDMA_IF_N CDMA_IF_N RX_IP RX_IP RX_IP
AMPS_IF_P AMPS_IF_P RX_IN RX_IN RX_IN
AMPS_IF_N AMPS_IF_N RX_QP RX_QP RX_QP
RX_QN RX_QN RX_QN
GAIN_CTL GAIN_CTL
IF_SEL IF_SEL
F_REF_RX F_REF_RX
BAND_SEL_FE BAND_SEL_FE
BAND_SEL_VCO
RX_IF_AGC RX_IF_AGC RX_IF_AGC

CLK19M2_GPS
CLK19M2_TIKU
CLK19M2_LPRF

# N7000

version 10, edit 2

FALSE_DET
C7003 10p VR2
Z7000 FAR-F5EA-836M50-D27APZ 836.5MHz
IN OUT GND
PA_INPUT_CEL
VR6 VR6 VR2
C7000 10n
R7000 0R
C7001 10n
C7002 100n
L7000 27nH
C7004 1p2
L7001 33nH
L7002 27nH
C7005 1p2
RF_BUS_EN
RF_BUS_DATA
RF_BUS_CLK
TX_GATE
F_REF_TX
C7007 3p3
C7006 220p
VR2
C7008 10n
C7009 47p
VR2
C7010 10p
C7011 VR2
L7003 6n8H
C7012 0p5
Z7001 NWT190 1880MHz
IN OUT GND
PA_INPUT_PCS
L7004 12nH
L7005 6n8H
C7013 0p5
N7000 JUPITER_D4_PMB3365G
31 ENABLE
32 DATA
33 CLOCK
34 TX_GATE
35 VDD_BUS
36 FREF
37 VDD_PLL
38 VDD_CP
39 CP
1 GND_CP
2 VTUNE
3 VCC_VCO
4 VCC_LO
9 BBI
10 BBIX
11 BBQ
12 BBQX
14 VCC_MOD
15 AGC_REF
16 AGC1
17 AGC2
18 VCC_RF
VCC_CDRV 20
COUT 22
COUTX 23
ISET_DRV 19
VCC_PDRV 27
POUTX 24
POUT 25
NC 21
PDET_OUT 28 PWROUT_1
PDET_REF 29 TEMP
PDET_IN 30 DCOUT
VCC_PA(4.75V) 5
ISET_PA 6
IPA1 7
IPA2 8
BOTTOM PLATE= GND
R7001 10k
C7014 100p
C7015 2n2
C7016 100p
R7002 27k
VR6 VIO
C7017 6p8
L7006 27nH
C7018 10n
C7019 18p
R7003 12k
C7020 4p7
C7021 1u0
VR1B
C7022 10n
J7001
R7008 0R
PWROUT
TEMP
DCOUT
R7009 150R
IREF_CEL
R7010 150R
IREF_PCS
TX_IP R7004 0R
TX_IN R7005 0R
TX_QP R7006 0R
TX_QN R7007 0R
TX_AGC1
TX_AGC2
VR2 VIO J7000
C7023 33p
C7024 18p
VR2
C7025 33p
C7026 6p8
C7027 56p NOT_INSTALLED
C7028 3p3
C7029 3p3
C7030 8p2
AUXDAC
R7011 33k
R7012 2k2
R7013 39k
GND

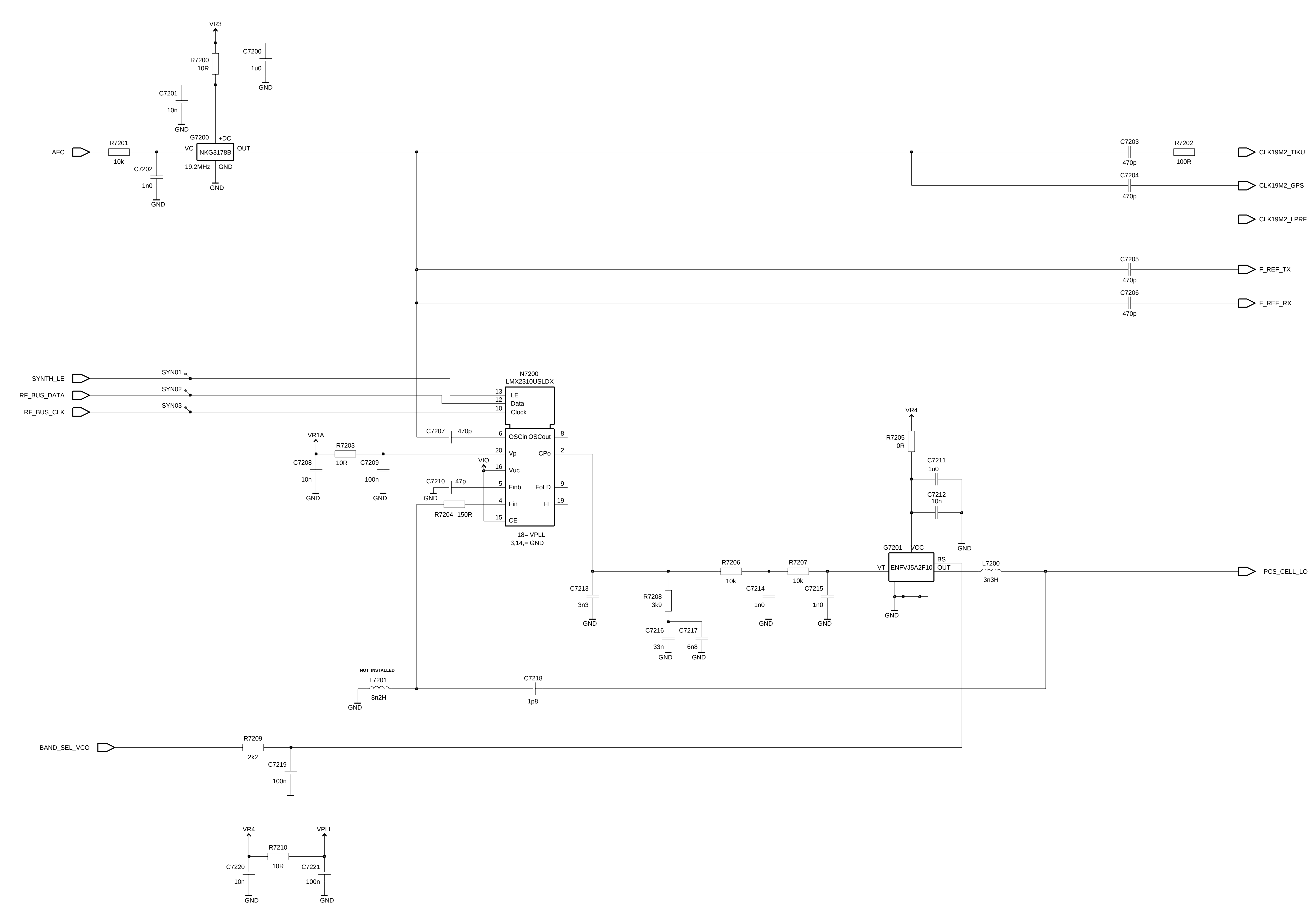
# PA

version 10, edit 3

PA_INPUT_PCS
R7300
0R
IREF_PCS
N7302
RF3448E5
RFin
Vid
Iref/Vref
NA
Vcc1
Vcc1
Vcc1
Vcc2
Vcc2
RFout
RFout
NA(CX2)
NA(CX2)
GND/NC
GND/NC
GND
GND
GND
GND
GND
BOT_SURF=GND
C7301 1n0
C7302 6p8
C7303 10n
C7304 15p
C7305 3p3
C7306 1n0
C7307 10p
PCS
C7318 2p2
C7300 1p0 NOT_INSTALLED
L7301 4n7H
Z7301
DUPLEX FILTER
PCS
TX
RX
ANT
LNA_PCS
L7302
EHF4CM1880
ROUT
DOUT
OUT
IN
R7301 56R
Z7300
DIPLEXER
P1
P2
P3
R7303 0R NOT_INSTALLED
X7300
X8000
L7307
C7309
R7302 0R
N7300
STPAC01F2
RFIn
Gnd1
Bias
Gnd1
VTemp
DCout
Gnd2
Gnd1
VR2
C7312 10n
C7313 10p
C7314 3n3
C7315 3n3
R7307 0R
TEMP
R7308 0R
DCOUT
VBAT
C7311 10u
L7304 10nH
R7304 0R
L7305 3n3H NOT_INSTALLED
L7306
EHF4CM0836A
DOUT
ROUT
IN
OUT
R7306 56R
PA_INPUT_CEL
R7305 0R
IREF_CEL
N7301
RF3449E4
RFin
Vid
Iref
Vbias
Vcc1
Vcc2
Vcc2
RFout
RFout
NC
NC
GND/NC
GND/NC
GND
GND
GND
GND
GND
BOT_SURF=GND
C7323 1n0
C7319 100p
C7320 1n0
C7321 1n0
C7322 3p3
CELL
C7316 47p
C7317 3p3
Z7302
DUPLEX FILTER
TX
RX
ANT
LNA_CEL
R7309 47k
PA_TEMP
GND

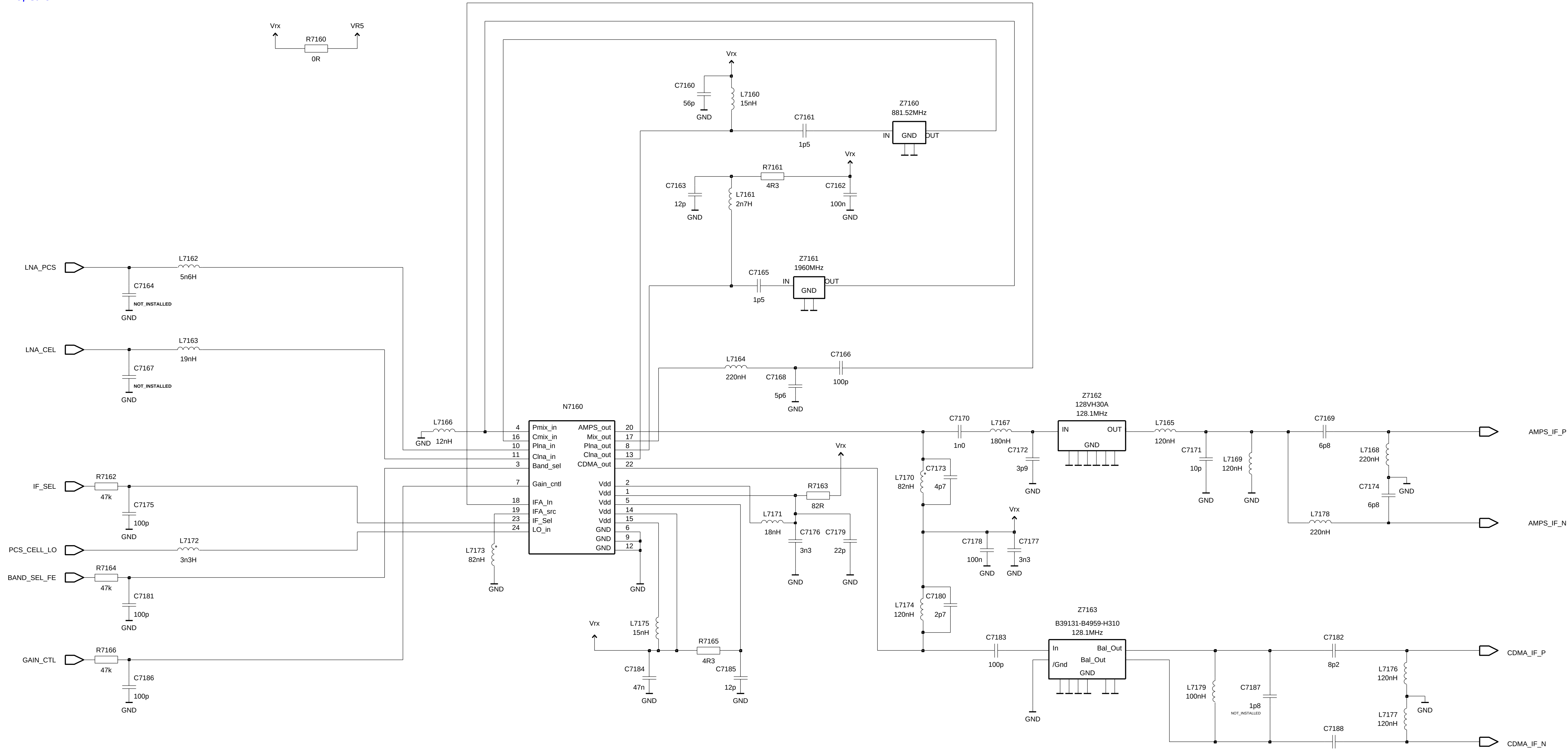
# UHF Synthesizer

version 10, edit 2



# Front End (N7160)

version 10, edit 2




| | LOGIC INPUTS | | |
|---|---|---|---|
| MODES | BAND | GAIN_CTL | IF_SEL |
| CEL CDMA Hi Gain | 0 | 1 | 0 |
| CEL CDMA Lo Gain | 0 | 0 | 0 |
| PCS CDMA Hi Gain | 1 | 1 | 0 |
| PCS CDMA Lo Gain | 1 | 0 | 0 |
| AMPS Hi Gain | 0 | 1 | 1 |
| AMPS Lo Gain | 0 | 0 | 1 |

# N7100

version 10, edit 2

F_REF_RX

C7100 10n
R7100 1k0
C7101 330n
R7101 470R
C7102 33n

R7102 4k7
C7103 33p
C7104 1n0
V7100 BBY57-02W
L7101 33nH

N7100

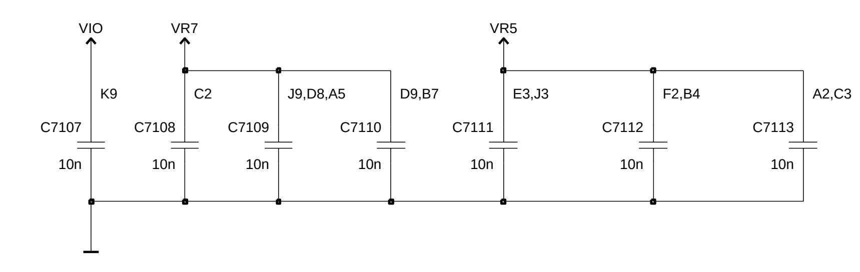
VR5 E3 VCC_CH
K8 CLK19M2
F1 PD_LO2
E1 RESO_LO2
A1 RX_VHFBUF_p
B1 RX_VHFBUF_n
VR5 A2 VCC_LO
VR7 A3 GND_LO
C2 VCC_PLL2
C1 VSS_PLL2

TEST_OUT B2
GND_CH D2
RFBusClk K7 RF_BUS_CLK
RFBusEn1X H5 RF_BUS_EN1X
VCO_ctrl J10 BAND_SEL_FE
LPB_SW K10
VCC6 C3 VR5 VIO
GND6 D1
VCC_DIGI K9
VSS_DIGI K6
Reset J5 PURX
RFBusData J6 RF_BUS_DATA
OUT1 H9 BAND_SEL_VCO
OUT2 H8
OUT3 G8 GAIN_CTL
OUT4 F10 IF_SEL
OUT5 A7 BATM01
OUT6 A6
VCC_CTRL B7 VR7
GND_CTRL B8
VCC_bias F2 VR5
GND_bias H1

VR7
CDMA_IF_P J9 VCC_ext
CDMA_IF_N H10 VSS_ext
AMPS_IF_N C10 RX_IF_p
AMPS_IF_P B10 RX_IF_n
A9 RX_IF1_n
A10 RX_IF1_p
D8 VCC4
A8 GND4
A5 VCC8
B6 GND8a
B5 GND8b
VIO R7103 8k2
C7105 10n
E10 AGC_Ref
F9 RX_IF_AGC
D9 VCC5
D10 GND5
RX_IF_AGC
R7104 27k
G2 Rbias
G1 Vref

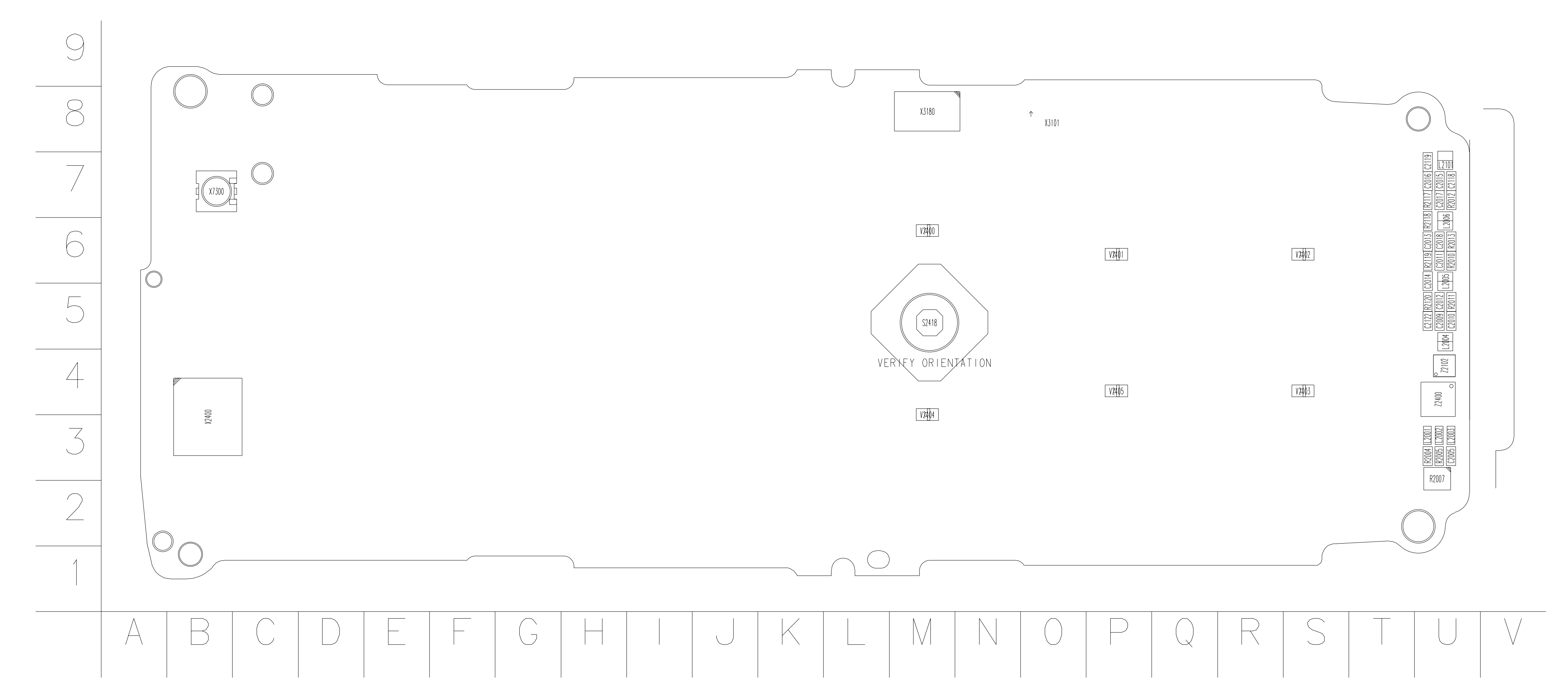
RXIP RXIN RXQP RXQN
RX_IP J1 RX_IP
RX_IN H2 RX_IN
RX_QP K1 RX_QP
RX_QN K2 RX_QN
IFI_TEST_p E8
IFI_TEST_n E9
IFQ_TEST_P G9
IFQ_TEST_n G10
GND_IF A4
VCC_IF B4 VR5 VR5
VDD9 J3
VSS9 K3
OFFQ K5
OFFI K4

VREFRF01
C7106 10n



## Component Layout - Top

version 10



# Component Layout - Bottom

version 10

